REFCOM II, User Manual

Table of Contents:

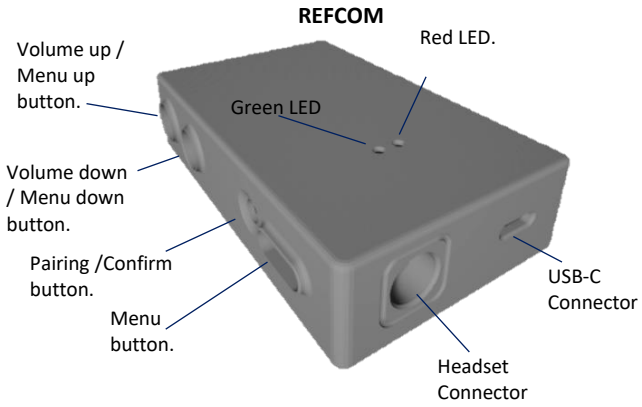
1. General

The new Spintso Refcom II radio system is developed by Referees for Referees and is optimized for use in both indoor and outdoor sports environments.

2. Sections

- 4. Overview
- 5. Generic functions/features
- 6. Handling
- 7. Interfaces
- 8. Label
- 9. Charging cable

3. Overview



4. Generic functions/features

- Optimized for Referees
- Open speech conference with high performance wind & ambient noise reduction.
- Automatic whistle sound level limitation.
- Compatible with both Spintso standard in-ear headset & Twistlock premium headsets
- Bluetooth 5.1 standard encryption.
- Customized high performance internal antenna solution. Line of site range ~800m
- 2-4 users with full duplex audio.
- Easy initial set-up by assigning each radio an individual id nr. (1-4)
- Connects automatically at each match after power-on.
- License Free 2.4GHz radio band, CE, UKCA, FCC, GITEKI.
- Battery level announcement at start-up (High, Medium, Low)
- Operational Time 10+h
- Operating Temperature -10 to + 45 °C
- Climatic environment IP54. Waterproof 3,5mm audio and USB-C connectors.
- Size: (51 x 20 x 82 mm)
- weight: 58g
- Future proof by SW upgrades through USB.

5. Handling

5.1. Activation

- Radios are started up by pressing down Volume up and Volume down buttons at the same time for 1 second.
- Radios are deactivated by pressing Volume up and Volume down buttons at the same time for 2 seconds.

5.2. Indications

5.2.1. LEDs

- At start-up and power off, both LEDs activates for 2 seconds. During normal operation the LEDs indicates the current status.

5.2.2. Recorded voice

- At start-up the current applicable settings and status is presented in the headset. For example:
    - Radio designation number (Radio [1-4])
    - Battery Level (BATTERY [HIGH/NORMAL/LOW/EMPTY])
    - Headset type (LITE HEADSET/TWISTLOCK HEADSET)

5.3. Pairing

- Pairing procedure is performed using the confirm button and the audio Menu.
    - Press the confirm button for 6 seconds on each radio to clear the pairing history and to set the radios into radio pairing mode.
    - Access the audio menu on each radio one at a time by pressing the MENU-button. Press MENU-button again to assign each radio an individual number (1-4) Change number by pressing the +/- buttons. Confirm the selected number by pressing down the confirm button.
    - The pairing can be started when all radios have been set-up with their individual number. Press the confirm button for 2 seconds on the radio assigned to “RADIO 1”. All radios will pair automatically in sequence.

5.4. LED Indications

5.4.1. Radio pairing mode

Radio pairing mode state is indicated by both LEDs being continuously active.

5.4.2. Pairing

While pairing the green LED blinks 2 times per second at a 50% duty cycle. The red LED remains continuously active until successful pairing.

5.4.3. Connected state

a. One connected radio is indicated by a single blink.
b. Two connected radios are indicated by a double-blink.
c. At low battery, the red LED shall activate.
d. The LED blinking is synchronized and moves from radio 1 to radio 4.

5.4.4. Not connected state

When not connected the green LED blinks 1 time per second at a 50% duty cycle.

900-1000ms

5.5. Radio Connect

5.5.1. Connecting radios

Radios that have been previously paired, connects automatically after start-up. At connect the recorded voice says CONNECT RADIO “X” on each radio.
All connected radios LEDs indicates connected mode in synchronization.

5.5.2. Disconnect in connected mode

- Disconnect only occur when out of range, or if a radio is turned off. At disconnect, the recorded voice says RADIO “X” LOST on the applicable radio, and the applicable LED indicates accordingly. If losing one of two radios, the radio indicates connected to one radio. if losing all radios, the radio indicates not connected.

5.5.3. Automatic re-connect.

- If radios disconnect during normal operation because of poor radio connection or by being out of range, the radios automatically re-connect when the radios are back within operational range.

5.6. Volume control

The earphone volume can be adjusted in 12 steps. Changing of the volume level is indicated be beep sounds. A high pitch beep sound indicates reaching the highest or the lowest volume setting.

5.7. Audio Menu

- The radio features an audio menu for setting different options. For example, selection of preferred headset model or radio number.
- Menu button is pressed to access menu mode.
- Volume buttons are used to change a setting.
- Confirmation button is used to confirm the selected setting.
- Pressing the menu button several times, steps between the menu options.
- Exit menu to normal operation i.e. Volume buttons go back to changing volume, is done after confirming a selection, or automatically after three seconds if not pressing any buttons. A selected parameter is not stored if *exit menu* occurs automatically after the three second time-out.

5.7.1. Battery status

When in normal operation, pressing and releasing the Bluetooth button within 2 seconds activates a battery status message. (Battery High, Battery normal, battery low, battery empty)

5.7.2. Key-click sounds.

When pressing a button, a brief key-click sound shall be presented in the headset.

5.8. Charging

- Charging is indicated by the red LED being active.
- Charging finished in radio off state is indicated by turning the red LED off and turning the Green LED on.
- Charging finished in radio on state is indicated by turning the red LED off. The green LED indicate status normally.
- Charging time is less than 4h.

5.8.1. Operational time

Operational time with a fully charged battery is at least 10h under the following conditions: Maximum radio transmission power, 10% speaking time, and 0 degrees Centigrade ambient temperature.

6. Interfaces

6.1. Headset

The headset interface features a waterproof 4-pole 3,5mm headset connector. It is compatible with the SPINTSO SwiftFit headset and the Spintso provided Twistlock headset.

6.1. Charging & Data

The charging interface features a Waterproof USB-C connector. This interface also handles upgrades of the radio firmware.

6.2. Antenna

The radio features a calibrated internal antenna that provides optimal radio range and signal quality.

7. Label

- The radios features a free submerged area on the back where a label that displays the radio designated number and the Referee role can be attached. For example: “RADIO 1, AR2”, “RADIO 2, REFEREE”, “RADIO 3, AR1”

8. Charging Cable

- The Refcom radios are charged from a normal USB-C cable that connects to a standard USB A power outlet. The cable provides for charging and data communication.

FCC:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

MANUFACTURE:
Shenzhen NOECI Technology Co.,Ltd
B2-1803, China Merchants Smart City ,Guanguang Road,fenghuang street, Guangming district, Shenzhen city, Guangdong province, China

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.